LAWRENCE LIVERMORE REPORT

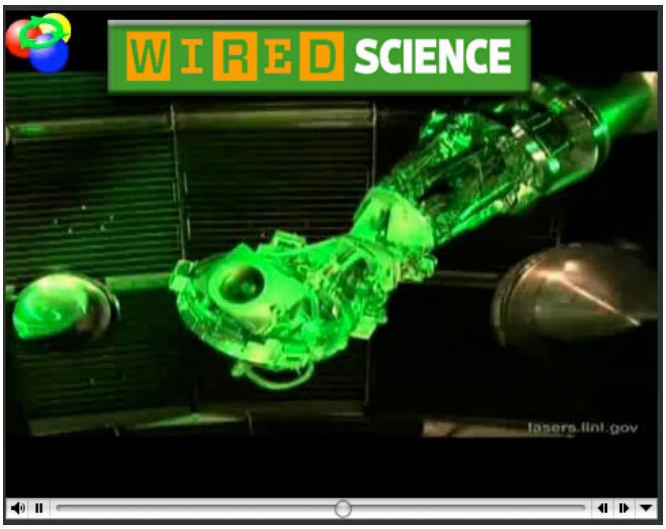
A weekly collection of scientific and technological achievements from Lawrence Livermore National Laboratory: Oct. 13-Oct. 20, 2008.

What is Lawrence Livermore?

Not only was the Lab featured on a recent episode of TV's popular quiz show “Jeopardy,” the "answer" was the Daily Double. See if you'd win. And please, remember to phrase your response as a question when you click on the link below.

https://publicaffairs.llnl.gov/news/llnl_reports/jeopardy22sep2008.mov

Wired Science taps into the National Ignition Facility



The National Ignition Facility was recently featured in a *Wired Science* podcast. NIF and Photon Science Principal Associate Director Ed Moses discussed how NIF will be used for securing the nation's stockpile of nuclear weapons, creating astrophysical phenomena and producing a new source of clean energy in the form of fusion.

To see the podcast, go to
https://publicaffairs.llnl.gov/news/llnl_reports/wired_science_nif.mov

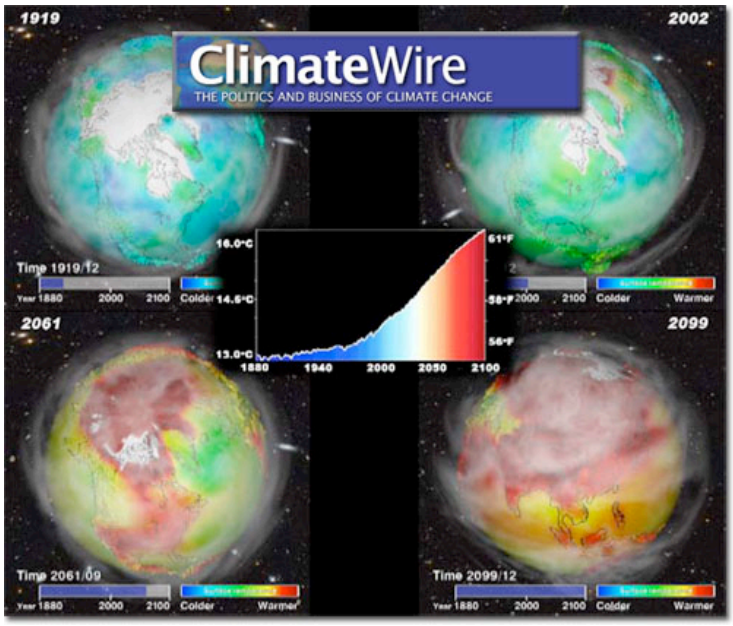
A look back at the history of sequencing the Human Genome

While there was much discussion in the 1980s about sequencing the human genome, one conference held in the Southwest was critical in getting the project moving.

In a story about “meetings that changed the world,” *Nature* profiles a 1986 meeting in Santa Fe that turned the idea of sequencing the human genome into reality. The Lab’s Mort Mendelshohn, who then headed LLNL health and environmental research programs, was crucial in getting the genome meeting off the ground.

To read the full article, go to
http://www.nature.com/nature/journal/v455/n7215/full/455876a.html

LLNL scientists unravel long-standing climate science puzzle



Computer model simulated changes in surface temperature and sea-ice extent.

A team led by Livermore scientists has helped reconcile the differences between simulated and observed temperature trends in the tropics.

Using state-of-the-art observational datasets and results from computer model simulations archived at Lawrence Livermore National Laboratory, LLNL researchers and colleagues from 11 other scientific institutions have refuted a recent claim that simulated temperature trends in the tropics are fundamentally

inconsistent with observations. This claim was based on the application of a flawed statistical test and the use of older observational datasets.

Climate model experiments predict that human-caused greenhouse gas increases should lead to more warming in the tropical troposphere (the lowest layer of the atmosphere) than at the tropical land and ocean surface. .

Until several years ago, however, most satellite and weather balloon records suggested that the tropical troposphere had warmed substantially less than the surface.

For nearly a decade, this apparent discrepancy between simulations and reality was a major conundrum for climate scientists. The discrepancy was at odds with the overwhelming body of other scientific evidence pointing toward a "discernible human influence" on global climate.

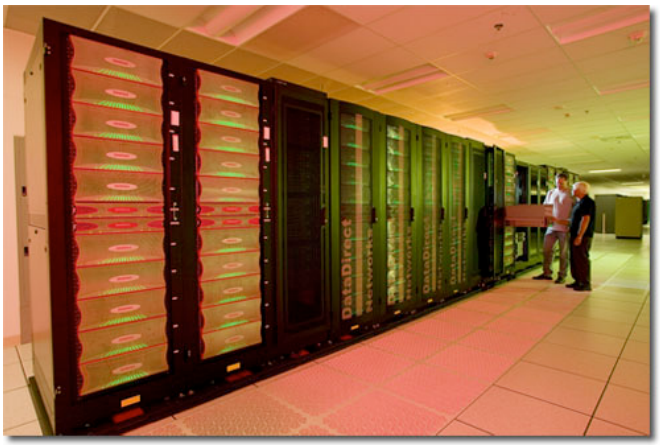
To read more about the research, go to *Climate Wire* at http://www.eenews.net/climatewire/2008/10/14/archive/1?terms=Santer

Lab radiation technology tops UC *Science Today* Website

The Lab's recent announcement about the adaptable radiation area monitor (ARAM) being used by state and local governments to monitor for nuclear materials that could be part of a "dirty bomb" or nuclear device is the feature of the week on the University of California's *Science Today* Website.

To see the feature, go to http://www.ucop.edu/sciencetoday/index.php or http://www.ucop.edu/sciencetoday/article/18741.

Photo of the week



Shot in the dark – Lance Weems and Keith Fitzgerald tend to Dusk, the global parallel file system for Dawn, a 500-teraflop (trillion floating operations per second) supercomputer. Many of the Lab's supercomputers are used to simulate the conditions inside a nuclear weapon. The computers also are used for earthquake simulations and climate change models.

LLNL is managed by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy's National Nuclear Security Administration.

LLNL applies and advances science and technology to help ensure national security and global stability. Through multi-disciplinary research and development, with particular expertise in high-energy-density physics, laser science, high-performance computing and science/engineering at the nanometer/subpicosecond scale, LLNL innovations improve security, meet energy and environmental needs and strengthen U.S. economic competitiveness. The Laboratory also partners with other research institutions, universities and industry to bring the full weight of the nation's science and technology community to bear on solving problems of national importance.

To send input to the Livermore Lab Report, send e-mail mailto:labreport@llnl.gov.

The Livermore Lab Report archive is available at: https://publicaffairs.llnl.gov/news/lab_report/2008index.html